

CLAIMS

- 1 1. A switch coupled between a plurality of host units and a device for communicating
2 therebetween and comprising:
 - 3 a) a first serial advanced technology attachment (ATA) port coupled to a first host
4 unit, said port including a first host;
 - 5 b) a second serial ATA port coupled to a second host unit;
 - 6 c) a third parallel ATA port coupled to a device; and
 - 7 d) an arbitration and control circuit for selecting one of the first host or second host
8 units to be coupled to the device, through the switch, whenever either of the host
9 units sends commands for execution thereof by the device.
- 1 2. A switch as recited in claim 1 wherein said first serial ATA port includes a first host
2 task file.
- 1 3. A switch as recited in claim 2 wherein said second serial ATA port includes a second
2 host task file.
- 1 4. A switch as recited in claim 3 wherein said third parallel ATA port includes a device
2 task file.
- 1 5. A switch as recited in claim 4 wherein said first, second and third ports are level 4
2 ports.
- 1 6. A switch as recited in claim 1 wherein said device is a storage unit.
- 1 7. A switch as recited in claim 1 wherein said switch is employed in an enterprise
2 system.
- 1 8. A switch as recited in claim 1 wherein said arbitration and control circuit causes
2 concurrent access of the device by the first and second host units.

- 1 9. A switch as recited in claim 1 wherein information, in the form of data, commands or
2 setup, is transferred from the device to the first or second host units through the switch
3 and the information is modified by the switch prior to being received by the first or
4 second host units such that modified information rather than the information is
5 received by the first or second host units.
- 1 10. A switch as recited in claim 9 wherein the information is referred to as 'identity drive
2 response'.
- 1 11. A switch as recited in claim 9 wherein the information is referred to as 'Tag.
- 1 12. A switch as recited in claim 1 wherein information, in the form of data, commands or
2 setup, is transferred from the first or second host units to the device through the switch
3 and the information is modified by the switch prior to being received by the device
4 such that modified information rather than the information is received by the device.
- 1 13. A switch as recited in claim 12 wherein the information is referred to as 'Tag'.
- 1 14. A switch as recited in claim 13 wherein the arbitration and control circuit include a
2 Tag/Sactive Mapping Circuit for mapping a host tag to a device tag and inverse
3 mapping for identifying a host.
- 1 15. A switch as recited in claim 1 wherein either the first or the second host sends a
2 legacy queue command queued by the device.
- 1 16. A switch as recited in claim 1 wherein either the first or the second host sends a native
2 queue command for execution thereof by the device.
- 1 17. A switch as recited in claim 1 wherein the first, second and third ports are level 3
2 ports and a Data frame information system (FIS) first-in-first-out (FIFO) and an
3 associated FIFO Control are coupled to the first, second and third ports and located
4 external thereto.
- 1 18. A switch comprising:

- 2 a. a first serial advanced technology attachment (ATA) port for connection to a
3 first host unit;
4 b. a second serial ATA port for connection to a second host unit;
5 c. a third parallel ATA port for connection to a device; and
6 d. an arbitration and control circuit for selecting either the first host unit or the
7 second host unit to be coupled to the device, through the switch, when either
8 host units sends commands for execution by the device,
9 wherein while one of the first or second host units is coupled to the device, through the
10 switch, the other one of the first or second host units sends ATA commands to the switch
11 for execution by the device.

1 19. A switch as recited in claim 18 wherein the switch is a serial ATA switch.

1 20. A switch as recited in claim 18 wherein said first serial ATA port includes a first host
2 task file.

1 21. A switch as recited in claim 20 wherein said second serial ATA port includes a second
2 host task file.

1 22. A switch as recited in claim 21 wherein said third parallel ATA port includes a device
2 task file.

1 23. A switch as recited in claim 18 wherein said device is a storage unit.

1 24. A switch as recited in claim 18 wherein said switch is employed in an enterprise
2 system.

1 25. A switch as recited in claim 18 wherein said arbitration circuit causes concurrent
2 access of the device by the first and second host units.

1 26. A switch as recited in claim 18 wherein information, in the form of data, commands
2 or setup, is transferred from the device to the first or second host units through the
3 switch and the information is modified by the switch prior to being received by the

- 4 first or second host units such that modified information rather than the information is
5 received by the first or second host units.
- 1 27. A switch as recited in claim 26 wherein the information is referred to as 'identity drive
2 response'.
- 1 28. A switch as recited in claim 26 wherein the information is referred to as 'Tag'.
- 1 29. A switch as recited in claim 18 wherein information, in the form of data, commands
2 or setup, is transferred from the first or second host units to the device through the
3 switch and the information is modified by the switch prior to being received by the
4 device such that modified information rather than the information is received by the
5 device.
- 1 30. A switch as recited in claim 28 wherein the information is referred to as 'Tag'.
31. A switch that is connectable to a first host unit, a second host unit and a device via
serial advanced technology attachment (ATA) links, said switch comprising:
- 1 a. a first serial ATA port for connection to a first host unit;
2 b. a second serial ATA port for connection to a second host unit;
3 c. a third parallel ATA port for connection to a device;
4 d. an arbitration and control circuit for selecting one of the first or second host
5 units to be coupled to the device through the switch when either the first or
6 second host units sends commands for execution by the device,
7 wherein while one of the first or second host units is coupled to the device, the other
8 one of the first or second host units sends ATA commands to the switch for execution
9 by the device.
- 1 32. A switch as recited in claim 31 wherein the switch is a serial ATA switch.
- 1 33. A switch as recited in claim 31 wherein said first serial ATA port includes a first host
2 task file.

- 1 34. A switch as recited in claim 33 wherein said second serial ATA port includes a second
2 host task file.
- 1 35. A switch as recited in claim 34 wherein said third parallel ATA port includes a device
2 task file.
- 1 36. A switch as recited in claim 31 wherein said device is a storage unit.
- 1 37. A switch as recited in claim 31 wherein said switch is employed in an enterprise
2 system.
- 1 38. A switch as recited in claim 31 wherein said arbitration and control circuit causes
2 concurrent access of the device by the first and second host units.
- 1 39. A switch as recited in claim 31 wherein information, in the form of data, commands
2 or setup, is transferred from the device to the first or second host units through the
3 switch and the information is modified by the switch prior to being received by the
4 first or second host units such that modified information rather than the information is
5 received by the first or second host units.
- 1 40. A switch as recited in claim 39 wherein the information is referred to as 'identity drive
2 response'.
- 1 41. A switch as recited in claim 39 wherein the information is referred to as 'Tag'.
- 1 42. A switch as recited in claim 31 wherein information, in the form of data, commands
2 or setup, is transferred from the first or second host units to the device through the
3 switch and the information is modified by the switch prior to being received by the
4 device such that modified information rather than the information is received by the
5 device.
- 1 43. A switch as recited in claim 42 wherein the information is referred to as 'Tag'.